

PATENT COOPERATION TREATY

PCT


INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 23 NOV 2005

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Applicant's or agent's file reference TS 1402 PCT		FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/EP2004/012257		International filing date (day/month/year) 29.10.2004		Priority date (day/month/year) 31.10.2003
International Patent Classification (IPC) or national classification and IPC C10J3/84, C10J3/48, C10J3/52, C10J3/56, C10J3/54				
Applicant SHELL INTERNATIONALE RESEARCH MAATSCHAPPIJ B.V.				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 3 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand 03.06.2005		Date of completion of this report 24.11.2005		
Name and mailing address of the International preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer Lapeyrere, J Telephone No. +31 70 340-2333		



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Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-16 as originally filed

Claims, Numbers

13 as originally filed
1-12 received on 01.06.2005 with letter of 01.06.2005

Drawings, Sheets

1/2, 2/2 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-13
	No: Claims	
Inventive step (IS)	Yes: Claims	1-13
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-13
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

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Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability ;
citations and explanations supporting such statement

The following documents are referred to in this communication:

D1 : US 4 838 898 cited in the application

D2 : DE 41 15 824

- 1 Amendments brought to the application have been examined and are considered as fulfilling the requirements of Article 34(2) PCT.

Independent claim 1

- 2 Furthermore, the below-mentioned lack of clarity notwithstanding, the subject-matter of claim 1 is new in the sense of Article 33(2) PCT, and therefore the criteria of Article 33(1) PCT are met.

Document D1, which is considered to represent the most relevant state of the art, discloses (the references in parentheses applying to this document):

a system for removal of a toxic gas from a fly ash powder contaminated with the toxic gas, the system comprising:

- a source of the contaminated fly ash powder;
- a stripper assembly
- connecting means for fluidly connecting the source with the stripper assembly

From this, the subject-matter of independent claim 1 differs in that the stripper assembly comprises two or more stripper vessels, and the connecting means is arranged to selectively connect the source to one or more of the stripper vessels.

The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).

- 3 The problem to be solved by the present invention may be regarded as providing a system for detoxifying the particles with reduced cost.
- 4 The solution to this problem proposed in claim 1 of the present application has been considered as involving an inventive step (Article 33(3) PCT) because the stripper assembly composed of two or more stripper vessels allows a faster desorption of the gas compared the prior art and as a consequence, the cost of the process as a whole is lower.

Document D1 discloses a system with only one stripper vessel. Therefore document D1 does disclose nor suggest a system with two stripper vessels.

Document D2 discloses an apparatus with two stripper/desorption vessels which solves the problem of keeping gases apart in a adsorption/desorption cycle in a continuous process. Therefore the man skilled in the art would not combine the teaching of document D2 with document D1.

Therefore claim 1 involves an inventive activity (Article 33(3) PCT).

Independent claim 11

- 5 Document D1, which is considered to represent the most relevant state of the art, discloses (the references in parentheses applying to this document) :

a method of de-toxicating a fly ash powder contaminated with a toxic gas, wherein de-toxicating comprises at least partially removing the toxic gas from the contaminated fly ash powder, and the method comprises the steps of :

- providing a stripper assembly;
- transporting the contaminated fly ash powder from the source to the stripper assembly;
- stripping at least part of the toxic gas from a batch load of the contaminated fly ash powder in the stripper assembly;

From this, the subject-matter of independent claim 11 differs in that the provided stripper assembly comprises two or more stripper vessels and wherein transporting the contaminated fly ash powder from the source to the stripper assembly includes:

- selecting one or more of the stripper vessels; and
- transporting the contaminated fly ash powder to the selected one or more stripper vessels.

- 6 The subject-matter of claim 11 is therefore novel (Article 33(2) PCT). The problem to be solved by the present invention may be regarded as providing a process for detoxifying fly ash powder having lower cost.
- 7 For the same reasons exposed in paragraph 3, claim 11 is considered as involving an inventive activity (Article 33(3) PCT).

Re Item VIII

Certain observations on the international application

- 8 As explained below, some of the features in the apparatus claims 1 to 5 relate to a

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method of using the apparatus rather than clearly defining the apparatus in terms of its technical features. The intended limitations are therefore not clear from this claim, contrary to the requirements of Article 6 PCT.

- 9 In claim 1, the process features are "for stripping at least part of the toxic gas from a batch load of the contaminated fly ash powder", "for transporting the contaminated fly ash powder from the source to the stripper assembly".
- 10 In claim 2, the process features is "prior to discharging the collected contaminated fly ash powder to the stripper assembly via the connecting means".
- 11 In claim 3, the process features is "to collect the batch load of the contaminated fly ash powder".
- 12 In claim 5, the process features is "for sluicing the batch load from a first pressure to a second pressure different from the first pressure".